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EXAMINER

PENG, FRED H

ART UNIT

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2623

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/880,985-

Applicant(s)

BARRETT, PETER T.

Examiner

Fred Peng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 13, 18, 19 and 21-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 13, 18, 19 and 21-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06/13/2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/12/2007 has been entered.

**DETAILED ACTION**

***Response to Arguments***

2. Applicant's arguments filed 03/12/2007 have been fully considered but they are not persuasive.

Regarding Claims 1 and 28, the applicant argues that Chidlovskii teaches using only the matching portion of region contents in response to query containment. Thus different search terms result in a different portion of a region being identified (Remarks page 14, lines 25-27).

The examiner respectfully disagrees because Chidlovskii does teach that different search terms could result in the same region if both search terms all contained within the same region (Col 2 lines 50-53). Besides, in the main reference, Bruette also teaches different search terms like title and actor name could result in same program entry data if the program entry data contains both search terms (Col 3 lines 26-27; Col 6 lines 3-10, 41-58).

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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4. Claims 28-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 28-30 are directed to a computer-readable medium with descriptive material. The medium, based on the description in the specifications (page 8 Para 24 lines 1-5) can be a form of signal transmitting through the network. While "functional descriptive material" may be claimed as statutory product (i.e., a manufacture) when embodied on a tangible computer readable medium, a signal embodying that same functional descriptive is neither a process nor a product (i.e., a tangible thing) and therefore does not fall within one of the four statutory classes of 101. Rather, signal is a form of energy, in the absence of any physical structure or tangible material.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 13, 18, 19, 21, 23-25, 27-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruette (US 6,708,336 B1) in view of Chidlovskii (US 6,347,314).

Regarding Claims 1, 32, and 33, Bruette teaches receiving interactive broadcast data at the management system (IRD 10 -Fig. 1) the interactive broadcast data (program identifying information including search data and Table 1 - Col. 5, lines 20-30 & Fig. 2) having numerical signatures that each unique binary signature generated for an electronic program guide entry using programming information from a plurality information fields of the electronic program guide entry such that the unique binary signature for the electronic program guide entry matches any

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binary signature based on a portion of the programming information from the one or more information fields each of the numerical signatures (service provider search data - Fig. 1) [the service provider search data that is converted -Col. 5, lines 7-9, 32-34- from alphanumeric data is an entire EPG record/entry including program identifying information/entries such as call sign (Fig. 2) entry, title of program entry, EPG description entry, performers in the program entry, type of program entry, keyword entry, etc. (not illustrated but suggested as n-l, n+l, etc. columns in Fig. 2) (Col. 3, lines 30-42; Col. 5, lines 7-10)], each of the numerical signatures created prior to transmission across the video transmission medium using a first function adapted to convert alphanumeric text in fields of the electronic program guide entries of the interactive broadcast data into any of the numerical signatures (Col. 2, lines 40-42; Col. 3, lines 61-Col. 4, line 5; Col. 4, line 50-Col. 5, line 6; Bruette teaches the program identifying information is not displayed, but is the result of a "function" used to process the information identifying program channels and service provider search data, which is displayed; further more the conversion table 1 is used to convert the desired alphanumeric search data, i.e., the user's search query data, into a format that facilitates comparison with the program identifying information which is converted prior to transmission as disclosed; Col. 5, lines 40-43, 4-6; in which Bruette even further teaches that even though it is possible to store unconverted call signs in the RAM of the IRD 10 it is unpractical and unlikely) and storing the numerical signatures at the management system in RAM 22 (Col. 5, lines 4-7 & 40-46; in which the first function converts service provider search data/interactive broadcast data text descriptions from alphanumeric type data into decimal integers/"numerical sequences" for comparison);

inputting from the input device (remote control -Fig. 3) to the management system a first user-entered subset of program data fields (Col. 5, lines 64-67; since Bruette discloses EPG entry data including program title, description, performers, user-input search criteria inherently includes subset of program data fields like program Title);

using a second function (conversion table 1) that is adapted to convert the user-entered text string into a numerical signature that is stored at the management system, the numerical

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signature of the user-entered text string having the same format (decimal/integer) as the numerical signature converted by the first function for the interactive broadcast data (Col. 5, lines 53-55 & table 1, Col. 5; in which the second function converts the user input/characters directly to decimal integers by pressing the alpha key 28 -Fig.3 first and then the input is received by processor 18/RAM 22);

comparing each of the numerical signatures of the interactive broadcast data text descriptions to the first numerical signature of the user-entered text string (Col 6, lines 3-5);

determining that the first numerical signature matches at least a specified numerical signature in the interactive programming data (Col 6 lines 6-8);

based on the determination, the management system presenting a complete electronic program guide entry that matches the first user-entered input text string [the EPG entries/search data can be searched by the user and the result of search match is the return of what is searched for, i.e., the displayed of all of the alphanumeric text for the matched/searched EPG entry, a complete electronic program guide entry, Col. 3, lines 26-27; Col. 6, lines 3-10] (Col. 6, lines 41-58; in which the system identifies (returns) only one match to the user search criteria like program title).

inputting from the input device (remote control -Fig. 3) to the management system a second user-entered subset of program data fields (Col. 5, 64-67, user-input search criteria inherently includes subset of program data fields like actor name);

using the second function (conversion table 1) to convert the second user-entered text string into a second unique binary signature that is stored at the management system (Col. 5, lines 53-55 & table 1, Col. 5);

comparing the second binary signature to each of the unique binary signatures of the interactive broadcast data (Col 6, lines 3-5);

determining that the second unique binary signature also matches at least the specified unique binary signature in the interactive programming data (Col 6 lines 6-8);

based on the determination, the management system presents the complete electronic program guide entry that matched the first input text string (Col 3 lines 26-27; Col 6 lines 3-10, 41-58; the complete program guide entry that matches both first user-input text string like title and second user-input text string like actor name will then be presented for both).

Bruette fails to disclose the first function converting the search data into unique binary signatures and unique binary signatures having a fixed number of bytes and further fails to disclose the second function converting the user-entered search criteria into a unique binary signature and having the Same number of fixed bytes as the unique binary signature converted by the first function.

In an analogous art (the art being data retrieval via computerized conversion of records and computerized conversion of user queries to the records to facilitate fast/efficient output of matching results; Col. 3, lines 12-22, Col. 17, lines 45-46, Col. 2, lines 13-41; Bruette - Col. 7, lines 40-53), Chidlovskii similarly teaches converting/hashing user entered alphanumeric input into a numerical value for efficient comparison with a search database (Col. 6, lines 21-33; Col. 5, lines 1-3; Fig. 2A & 2B). Chidlovskii further teaches the first function converting the search data (region formulas/terms) into unique binary signatures (region signatures/signature files) and unique binary signatures having a fixed number of bytes (Fig. 2A; Col. 6, lines 1-9; in which region signatures are created from signatures representing a (unique/distinct) signature of a term; Col. 5, lines 9-11) and further discloses the second function converting the user-entered search criteria (query term/conjunction of terms) into a unique binary signature (query signature/signature file) and having the same number of fixed bytes as the unique binary signature converted by the first function (Fig. 2B; Col. 6, lines 1-7; Col. 2, lines 47-49; in which query signatures are created from signatures representing a (unique/distinct) signature of a term; Col. 5, lines 9-11 & Col. 7, lines 25-30), for the advantage of for the advantage of simple and efficient query evaluation and comparison that enables the avoidance of most tuple (text description record) duplications (i.e., false drops/positives or regions that "match" but are incorrect) and decreases memory space requirements (Col. 3, lines 24-29).

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Chidlovskii converts text descriptions (regions, Fig. 2A) and user-entered text (queries, Fig. 2B) into binary signatures (Col. 6, lines 5-7) and compares them in binary signature form (Col. 6, lines 30-32), for the advantage of simple and efficient query evaluation and comparison that enables the avoidance of most tuple (text description record) duplications and decreases memory space requirements (Col. 3, lines 24-29).

It would be obvious to one of ordinary skill in the art, at the time of the applicant's invention, to modify Bruette's hash function to include the limitations the first function converting the search data into unique binary signatures and unique binary signatures having a fixed number of bytes and to include the further limitation the second function converting the user-entered search criteria into a unique binary signature and having the same number of fixed bytes as the unique binary signature converted by the first function as taught by Chidlovskii, for the advantages of avoidance of most tuple (text description record) duplications and further decreasing memory space requirements (Chidlovskii - Col. 3, lines 24-29).

Regarding Claim 2, Bruette in view of Chidlovskii further teach the limitation: the binary signatures being converted from interactive broadcast data text descriptions using a first set of specified rules, which cause the interactive broadcast data text descriptions to differ from an original version prior to conversion into the binary signatures (Col. 5, line 63 - Col. 6, line 10; in which there is an inherent set of rules to perform the generation of a text description/region, e.g. query cache, into a conjunctive region formula, e.g. "query^cache" (a different version), prior to converting the formula terms into term (binary) signatures and ultimately into a region (binary) signature; Fig. 2A).

Regarding Claims 3 and 4, Bruette in view of Chidlovskii further teaches the limitation: converting the user-entered textstring into a binary signature using a second set of specified rules, which causes the user-entered text string to differ from an original version prior to conversion into the binary signatures, in which the first set of rules is equivalent/same to the



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second set of rules (Col. 5, line 63 - Col. 6, line 10; in which there is an inherent set of rules to perform the generation of a user-entered text string/query, e.g. query cache, into a conjunctive query formula, e.g. "queryAcache" (a different version), prior to converting the formula terms into term (binary) signatures and ultimately into a query (binary) signature; Fig. 2B; in which item 3 shows the second set of rules (for queries) is the same as the first set of rules (for regions/text descriptions).

Regarding Claim 13, Bruette teaches receiving and converting electronic program guide text descriptions (program guide - Bruette - Col. 3, lines 29-33) and comparing a converted user-entered text string to the EPG text descriptions as discussed above and Chidlovskii teaches receiving and converting description/regions and queries/user text input strings into binary signatures (Chidlovskii Col. 5, lines 1-10 & Col. 6, lines 25-31) and as discussed above. Bruette in view of Chidlovskii obviate the limitations receiving binary signatures of electronic program guide text descriptions and comparing the binary signatures of electronic program guide text descriptions to the binary signature of the user-entered text string for the same advantages as discussed above.

Regarding Claim 18 and 19, Bruette in view of Chidlovskii obviate the limitations a set top box associated with a television receiving binary signatures of the interactive broadcast data text descriptions and a set top box associated with a television receiving a user-entered text string from an input device (IRD/STB 10 Fig. 1 - Bruette - Col. 4, lines 50-52 & 39-41 and Fig. 3; Col. 5, 64-67).

Regarding Claim 21 Bruette in view of Chidlovskii obviate the limitation storing the binary signatures of the interactive broadcast data text descriptions (search data) on one or more physical storage media (RAM 22/ROM 20) (Bruette - Col. 5, lines 14-15, Col. 4, lines 65-67).

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Regarding Claims 23, 24, 25, and 27, Bruette in view of Chidlovskii obviate the limitations "receiving additional text, which is associated with one or more interactive broadcast descriptions", "receiving additional text, which is associated with one or more electronic program guide text descriptions", "receiving additional text, which is associated with one or more interactive broadcast data text descriptions, if the user-entered text string is included in any of the interactive broadcast data text descriptions", "determining based on the comparison, if the user-entered text string is included in any electronic program guide text descriptions" (Bruette - Col. 3, lines 25-47 & Col. 6, lines 6-23; Chidlovskii- Col. 7, lines 62-65).

Regarding Claims 28, 29, and 30, they are obvious in view of Bruette in view of Chidlovskii as analyzed in Claims 1, 8 & 18, and 19, respectively and further in regards to the further limitations, "a computer-readable medium carrying computer-readable instructions, that when executed at the processor of the management system, cause the management system to perform the following" and "wherein the computer-readable medium is one or more physical storage media" which are obviated by the teachings of Bruette in view of Chidlovskii (Bruette - processor 18, ROM 20, RAM 22 - Fig. 1 ; Col. 4, lines 44-49, and line 63 - Col. 6, line 10; Chidlovskii - Col. 3, lines 12-23 & Col. 4, lines 15-32).

Regarding Claim 31, Bruette in view of Chidlovskii, teach the unique signatures for the interactive broadcast data are converted immediately before they are loaded into RAM at the management system (i.e., it is inherent for Bruette to convert the program identifying information before it is transmitted to the IRD 10 for searching, e.g., when EPG/program identifying data is updated by the service provider) such that the interactive broadcast data text descriptions are converted to unique binary signatures as " they pass from EPG data to RAM (Bruette - Col. 3, line 61-Col. 4, line 4; Program identifying information is compiled from EPG data, Col. 3, lines 29-50).

Regarding Claim 34, it corresponds to the method of Claim 1. Thus, it is analyzed and rejected as discussed in Claim 1.

Regarding Claims 35 and 36, they correspond to the method of Claim 1 and the further limitations the first function is a hash function that produces a unique hash value for the unique binary signatures for the interactive broadcast data text descriptions and the second function is a hash function that produces a unique hash value for the unique binary signatures for the user entered-text string are also taught by Bruette in view of Chidlovskii (Chidlovskii- Col. 6, lines 25-31).

Regarding Claim 37, it corresponds to the method of Claim 1 and further Bruette in view of Chidlovskii teach the limitation the management system identifies the one and only item of interactive broadcast data that matches the user entered-text string, and wherein full text descriptions corresponding to the interactive broadcast data are displayed at the management system (Bruette - Col. 3, lines 25-47 & Col. 6, lines 6-23; in which Bruette discloses program identifying information such as an EPG guide including various service provider search data such as descriptions, performers, keywords, etc., ("full text descriptions", i.e., not converted text) can be displayed).

Regarding Claim 38, Bruette discloses a plurality of user entered text strings are input into the management system (Col. 6, lines 35-40) and that management system identifies a plurality of one and only one item of interactive broadcast data that matches each of the user entered-text strings (reads on the system identifying the match for two search strings, e.g., a movie title search and actor's name search) and Bruette also discloses the displaying of program identifying information including an EPG which includes service provider search data such as program title, list of performers (actor's names), a description, etc., (reads on displaying of full text descriptions corresponding to matching interactive broadcast data) but does not specifically

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disclose each of the corresponding text descriptions are displayed simultaneously. However, Applicant's Claims do not limit the displaying of each of the corresponding text descriptions to such an interpretation. Therefore, the Examiner broadly interprets Bruette's displaying of program identifying information including an EPG which includes search data such as program title and list of actors to encompass Applicant's "all of the full text descriptions corresponding to each of the matching interactive broadcast data are simultaneously displayed at the management system". Accordingly, it would have been obvious at the time of Applicant's invention to one of ordinary skill in the art to modify the suggested teaching of Bruette to encompass all of the full text descriptions corresponding to each of the matching interactive broadcast data are simultaneously displayed at the management system in order to provide more detailed search results and EPG data, thereby facilitating a more efficient search.

[Note: In the alternative, the examiner takes Official Notice that, at the time of the Applicant's invention, it was well known in the art to provide all of the full text descriptions corresponding to each of the matching interactive broadcast data are simultaneously displayed at the management system (as evidenced by Maze et al., US 6,216,264 B1 Fig. 2 & 3).

7. Claims 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruette (6,708,336 B1) in view of Chidlovskii (6,347,314) and further in view of Kessels et al. (4,598,385).

Regarding Claims 22 and 26, Bruette in view of Chidlovskii teach the bit-wise comparison of interactive broadcast data text description signatures to user-entered text signatures (as discussed above and in Chidlovskii- Col. 6, lines 58-67 & lines 30-32).

Bruette in view of Chidlovskii fail to specifically disclose the results of a logical OR operation performed on any/each of the binary signatures of the one or more interactive broadcast data text descriptions and the binary signature of the user-entered text string is identical.

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In an analogous art, Kessels teaches a method (Fig. 4 - Col. 6, lines 9-11) that determines bit-wise equivalence between a byte field/reference (such as text descriptions) in RAM 140, 142 and a received byte field/data record 114 (such as a user text input/query). Kessels' system compares, via comparator 156, the bytes of the reference/the text description (cached in RAM 142) to the result of a logical OR (implemented by comparator 152) performed on the reference/the text description (which is mirrored in RAM 140) and the received data record 114/query (Col. 6, lines 43-47 & Col. 6, lines 25-43; in which the EXCLUSIVE-OR/XOR function inherently does a logical OR operation to perform as disclosed).

It would have been obvious by one skilled in the art at the time the invention was made, to modify the method of Bruette in view of Chidlovskii to further include the results of a logical OR operation performed on any/each of the binary signatures of the one or more interactive broadcast data text descriptions and the binary signature of the user-entered text string is identical as taught by Kessels for the advantage providing a simple, efficient and easily implemented way to determine bit-wise correspondence/relationships between signatures.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Peng whose telephone number is (571) 270-1147. The examiner can normally be reached on Monday-Friday 08:30-18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on (571) 272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Fred Peng  
Patent Examiner

Chris Grant  
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